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FORM PTO-1083



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TC 2800 MAIL ROOM

Case Docket No. 032026:0471

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In re application of:
Serial No. 09/635,968

Filed: August 10, 2000

For: SINGLE MODE, SINGLE LOBE SURFACE EMITTING DISTRIBUTED FEEDBACK SEMICONDUCTOR LASER

COMMISSIONER FOR PATENTS

Patent and Trademark Office
Washington, D.C. 20231

Sir:

Transmitted herewith is an amendment in the above-identified application.

☐ Small entity status of this application under 37 CFR §1.9 and §1.27 has been established by a verified statement previously submitted.

☐ A verified statement to establish small entity under 37 CFR §1.9 and §1.27 is enclosed.

☒ No additional fee is required.

The filing fee has been calculated as shown below:

(Col. 1)		(Col. 2)		(Col. 3)	SMALL ENTITY		OTHER THAN A SMALL ENTITY		
	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NO. PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE	ADDIT. FEE	OR	RATE	ADDIT. FEE
TOTAL	30	MINUS	43	= 0	x 9 =	\$ 0		x 18 =	\$
INDEP.	3	MINUS	3	= 0	x 42 =	\$ 0		x 84 =	\$
<input type="checkbox"/> FIRST PRESENTATION OF MULTIPLE DEP. CLAIM					+ 140 =	\$		+ 280 =	\$
					TOTAL ADDIT. FEE	\$ 0	OR	TOTAL	\$

* If the entry in Col. 1 is less than the entry in Col. 2, write "0" in Col. 3.

** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, write "20" in this space.

*** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, write "3" in this space.

The "Highest Number Previously Paid For" (Total or Independent) is the highest number found from the equivalent box in Col. 1 of a prior amendment or the number of claims originally filed.

☐ Please charge my Deposit Account No. _____ in the amount of \$ _____. A duplicate copy of this sheet is attached.

☐ A check in the amount of \$ _____ is attached.

☒ The Commissioner is hereby authorized to charge payment of the following fees associated with this communication or credit any overpayment to Deposit Account No. 06-1447. A duplicate copy of this sheet is attached.

☒ Any filing fees under 37 CFR §1.16 for the presentation of extra claims.

☐ Any patent application processing fees under 37 CFR §1.17.

Please stamp the enclosed
postcard with the filing date
and serial number and
return the same to me.

Respectfully submitted,

Harry C. Engstrom, Reg. No. 26,876
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Madison, WI 53701-1497
(608) 258-4207



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PATENT APPLICATION

#8A Andt.
M. Brunsm
3/15/02

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: Dan Botez,
James G. Lopez,
Gunawan Witjaksono

Date: February 20, 2002

Docket No.: 032026:0471

Serial No.: 09/635,968

Group Art Unit: 2881

Filed: August 10, 2000

Examiner: Cecil B. Harmon

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JC 2800 MAIL ROOM

For: **SINGLE MODE, SINGLE LOBE SURFACE EMITTING DISTRIBUTED
FEEDBACK SEMICONDUCTOR LASER**

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Patent and Trademark Office, Washington, D.C. 20231 on February 20, 2002.

Harry C. Engstrom

(Name of applicant, assignee
or Registered Representative)

(Signature)

February 20, 2002

(Date of Signature)

AMENDMENT AND REPLY

Commissioner for Patents
United States Patent and Trademark Office
Washington, D.C. 20231

Dear Sir:

In reply to the Patent and Trademark Office Action of November 20, 2001, the time for reply set to expire as of February 20, 2002, please cancel Claims 1 - 12 and 22 without prejudice and amend the claims to read as follows:

13. (Amended) A surface emitting semiconductor laser comprising:

- A1
- (a) a semiconductor substrate, an epitaxial structure on the substrate including a layer with an active region at which light emission occurs, upper and lower cladding layers surrounding the active region layer, upper and lower faces, edge faces, with both of the edge faces formed to be antireflective, and electrodes by which voltage can be applied across the epitaxial structure and the substrate; and
 - (b) a distributed feedback grating incorporated with the epitaxial structure comprising periodically alternating grating elements to provide optical feedback as a second order grating for a selected effective wavelength of light generation from the active region, the grating having a spacing between adjacent grating elements at a position intermediate the edge faces that corresponds to a selected phase shift in the grating, the grating formed and positioned to act upon the light generated in the active region to produce lasing action and emission of light from at least one of the upper and lower faces of the semiconductor laser.

REMARKS

In the Office Action of November 20, 2001, Claims 1-43, all of the claims in the application, were rejected under 35 USC § 103(a) as unpatentable over the patent to Botez, et al., No. 5,727,013. For reasons explained below, it is submitted that all of the claims remaining in the application are patentably distinguishable over the patent to Botez and other references of record.

The Botez patent No. 5,727,013 is noted in the Background of the Invention section of the present application on page 3. As discussed therein, although ridge guided devices of this type should be capable of providing 50-100 mW CW power, they are generally unsuitable for high power single-mode applications because of non-uniform guided-field intensity profiles, which makes such devices susceptible to multimode operation due to